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MEDICINAL USE OF PLANTS BY THE PEASANT COMMUNITY OF SAN JACINTO, NORTHERN COLOMBIA

RENÉE M. BONZANI

University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, Pennsylvania, U.S.A. rbonzani@hotmail.com

Abstract

I studied the medicinal use of plants by the peasant community of the town of San Jacinto, located in the savanna of Bolívar, northern Colombia. Fifty-five families, 138 genera, and 118 species were scientifically identified from 249 specimens collected of the modern-day vegetation of San Jacinto. From these, 198 uses were recorded for 190 (76%) of the specimens. The 54 uses recorded for human medicine (27%) and the five uses recorded for animal medicine (2%) are discussed. Vernacular names, parts used, method of preparation, and medicinal uses are listed.

Key words: Colombia, ethnobotany, peasants, San Jacinto, traditional medicine.

Resumen

Se presenta un estudio etnobotánico de la comunidad campesina del pueblo de San Jacinto, localizado en las sabanas de Bolívar, norte de Colombia. Se identificaron científicamente 55 familias, 138 géneros, y 118 especies con base en 249 especímenes recolectados de la vegetación de San Jacinto. De esos, se establecieron 198 usos para 190 (76%) especímenes. Se presentan 54 usos para medicina humana (27%) y cinco usos para medicina animal (2%). Se listan nombres vernáculos, partes usadas, método de preparación, y usos medicinales.

Palabras Clave: campesinos, Colombia, etnobotaníca, medicina tradicional, San Jacinto.

Introduction

The town of San Jacinto is located approximately 85 km SE of the coastal city of Cartagena de Indias, between the towns of San Juan Nepomuceno and Carmen de Bolívar, Department of Bolívar (Figure 1). San Jacinto is located on the edge of the Serranía de San Jacinto (9 50' N, 75 7' W), a series of hills which rise above the surrounding lowlands to heights of up to ca. 700 meters above sea level. The town is located at an elevation of approximately 210 meters.

The general region around San Jacinto and the surrounding lower-lying areas are defined as savanna and given the name of the Sabana de Bolívar (IGAC 1975). This savanna area surrounds what is known as the "Depresíon Momposina" (Mompós Depression) located approximately 80 kilometers to the southeast. Some regions of this area lie below sea level and are exposed to frequent seasonal flooding episodes from the rivers San Jorge and Cauca which flow northwards into the Magdalena River, located approximately 25 km E of San Jacinto.

The town of San Jacinto was founded in 1776. Le Roy Gordon (1983), who conducted his Ph. D. studies in human geography in northern Colombia, indicates that many of the towns in the savanna of Bolívar near the town of Colosó, including San Jacinto, were founded by practically pure descendants of the indigenous groups of the Sinú. These towns were founded as part of the mobilization of

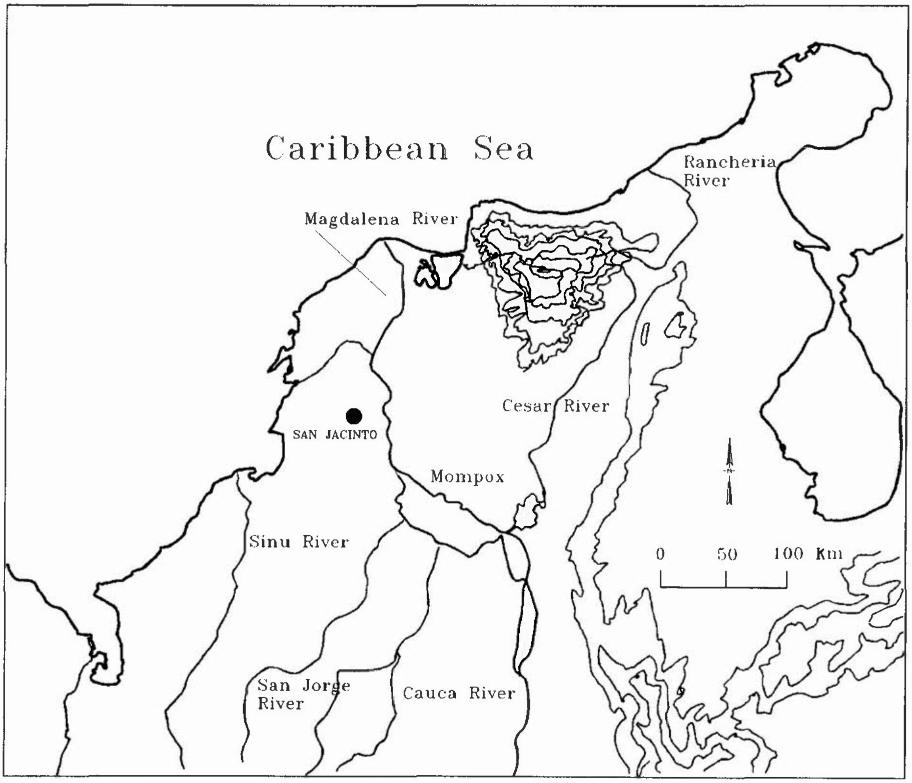

Figure 1. Map of the location of San Jacinto, Department of Bolívar, northern Colombia.

native persons for labor by the Spanish colonialists. In particular, Indians from the town of Morroa were relocated to what became San Jacinto. Morroa is a town specializing in hammock making and this practice was brought to San Jacinto. Le Roy (1983) notes that many of the indigenous crafts are still practiced in the region and includes Morroa and San Jacinto in this group as examples where the craft of making hammocks is part of the indigenous heritage of these towns. Indeed, today hammocks are made and sold by individual families in San Jacinto and are displayed for sale by numerous stores that line the Pan-American highway which cuts through the outskirts of the town.

Through the years these groups maintained traditional crafts and management of land. However, in recent years a large migration of *paisas* (Antioqueños from the region of Milagros) has increased the dichotomy between those persons living in the actual town and those living on the outskirts who continue to work the land. This aspect has resulted in differences in the knowledge of the uses and management of plants. As expected, the *campesinos* of the area work the land for food and cash crops and know more about the plant uses, seasonality, etc. As discussed below, the correspondence between the local *campesinos*' knowledge of the uses of plants and those uses cited by authorities in a general literature review is quite high. However, uses not previously cited in the literature even for well known plants of European origin need further study for bioactivity. When compared to urban/suburban residents' knowledge of plant use, the differences between maintaining a contact with the land and being disassociated from it are profound. This aspect needs more study but does stress the point that knowledge of plant uses disappears as people become less autonomous in terms of getting food, medicine, etc. from the land and become more tied to institutionalized venues (i.e., supermarkets, drug stores) for the distribution of such resources.

Methodology

Two hundred and seventy specimens of the modern-day vegetation from the region of San Jacinto, Department of Bolívar, Colombia were collected from October 1991 through April 1992 as part of the archaeological project of San Jacinto 1 (Bonzani 1995, 1997, 1998; Oyuela-Caicedo 1987, 1993, 1995, 1996). This collection was supplemented with informant interviews on useful plants found throughout the year. The specimens include 55 different families, 138 different genera and 118 different species. This article deals only with those plants identified as having a medicinal use (Tables 1, 2, and 3). When possible at least three samples of each specimen were collected. Samples of wood, seeds, tubers and pollen were also collected when possible. Information about each plant was obtained from informants who accompanied the author while plants were collected in the field. In the majority of cases informants were local inhabitants or *campesinos* from the town of San Jacinto. Information and voucher specimens of medicinal plants were obtained from two distinct sources including three medicinal gardens in San Jacinto where plants were purposefully cultivated or kept for their properties (Figure 2) and from areas around the archaeological site of San Jacinto 1, where plants were growing wild in an area not cultivated for approximately 10 years. Data included common names, local uses, parts utilized, preparation, seasonality and/or climatic/environmental indicators and any other comments noted by the informants. Uses included food, medicine, animal food, animal medicine, construction, colorant, poison, religious, ornamental, shade, boundary, fibers, firewood, other, or not utilized. Unknown use was also noted. Parts utilized included flowers, seeds, wood, bark, fruits, roots (rhizomes, tubers), stem, leaves and other parts utilized. Notes on preparation or specific use within a category (i.e., medicinal plant used to disinfect cuts) were also recorded. Informant surveys on the seasonality of 50 plant taxa used for food or other purposes were also given to six informants.

Two hundred and forty-nine of these specimens were scientifically identified. Voucher specimens are on file at JBGP and COL. Pollen samples were processed at the Fundación Erigaie in Bogotá, which has a copy of the pollen samples on slides. The majority of the taxonomic determinations was done by Hermes Cuadros Villalobos at JBGP in Cartagena. In some cases, as indicated in Tables 1 and 2, taxonomic determinations were made by the author in the field utilizing Romero Castañeda (1965) and Pérez-Arbeláez (1978).

Results

Data obtained on the medicinal use of plants for humans and animals during field collections in the area of San Jacinto are presented in Tables 1 and 2. Plants identified taxonomically are listed in the table with Latin name, vernacular name, parts used and preparation, when known, under their respective families, which are listed alphabetically. If different vernacular names were given for plants with the same taxonomic determinations, data are also listed according to vernacular name. Plants not identified taxonomically are discussed elsewhere (Bonzani 1995).

The 198 uses cited for the collected plants are of the following categories: 74 (37%) for food, 54 (27%) for medicine, 18 (9%) for animal food, 10 (5%) ornamentals, seven (4%) for religious uses, five (2%) for animal medicine, five (2%) for construction, four (2%) for colorants, three (2%) for firewood, two (1%) for boundary markers, two (1%) for fibers, one (1%) shade tree, and 13 (7%) other uses. In some cases a plant had more than one use. Many of the uses given by the informants of San Jacinto (Table 3) correspond to those noted in

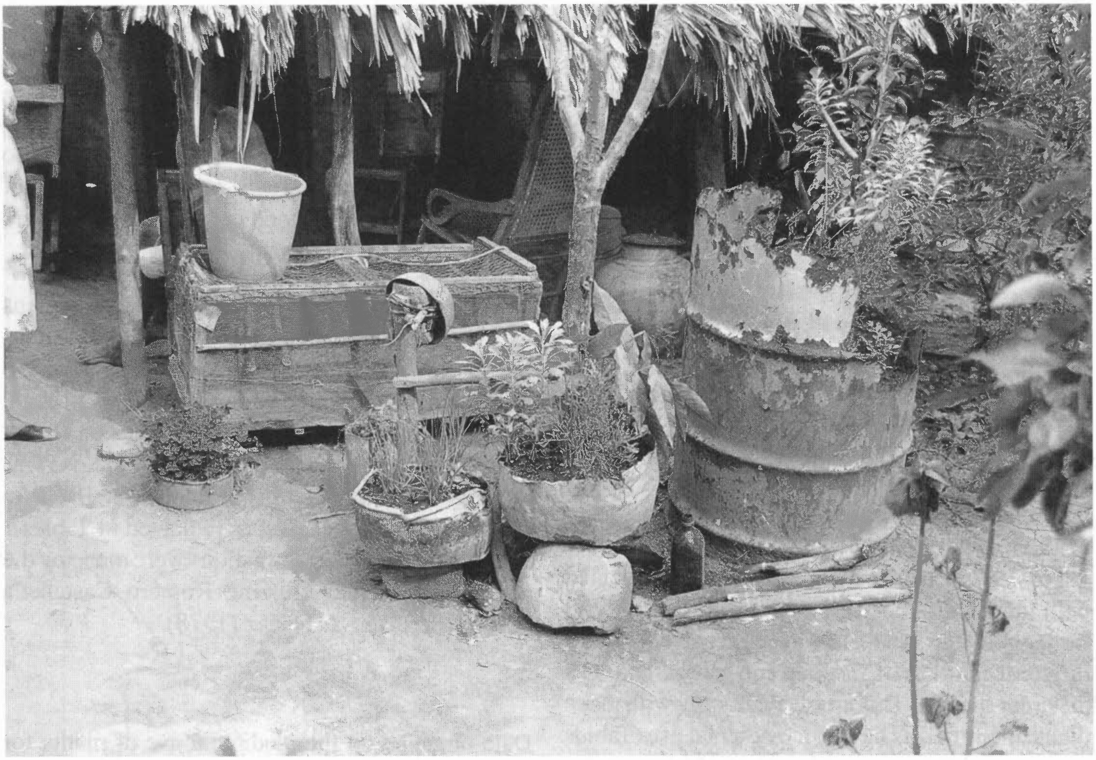

Figure 2. Examples of plants (i.e. *Artemisia absynthium* L.) grown in a medicinal garden in San Jacinto.

other sources on utilized plants of Colombia (Romero Castañeda 1965, García Barriga 1992, Pérez-Arbeláez 1978, 1990; Schultes & Raffauf 1990). However, there were a number of plants which had uses not listed in these references and these are discussed further below.

Medicinal plants covered 23 different families, 31 genera and 26 identified species (Table 1). Within the category of medicinal uses six genera were indicated to have more than one medicinal use, bringing the total number of medicinal uses cited to 54. Those plants with more than one use include *Chenopodium*, *Mentha*, *Momordica charantia* , *Peperomia*, *Plantago major*, and *Salvia*. All of these specimens except *Momordica charantia* came from medicinal gardens.

The medicinal uses were broken down into the following general categories: 23 uses (43%) for general pain, colds and to calm nerves; seven (13%) for ear, eye and throat problems; four uses (7%) to treat wounds and bites; three uses (6%) to treat urinary problems; three uses (6%) for odontological purposes; three (6%) to expel parasites or worms; three (6%) for dermatological reasons; two (4%) for intestinal problems; one (1%) for circulatory problems (anemia); one (1%) for pain during pregnancy; and four (7%) with unspecified uses.

Twenty-two specimens representing 10 families, 14 genera and 9 identified species were collected from the medicinal gardens. By far the majority (10 specimens, 45%) of the plants from the medicinal gardens are from the family Lamiaceae with the genera *Ocimum*, *Mentha*, *Origanum*, and *Salvia* making up 50%, 10%, 10%, and 10%of the family uses, respectively. The other specimens from the medicinal gardens in San Jacinto consisted of specimens of *Artemisia absinthium*, *Cassia* cf.

Table 1. Plants used medicinally at San Jacinto

Family	Species	Local name	Uses (collection numbers and herbaria of vouchers)
Cultivated Plants from Medicinal Gardens:			
Asteraceae	*Artemisia absinthium* L.	Artemisia	Whole plant boiled to treat pains [RB322].
	Artemisia absinthium L.	Ajenjo	Whole plant boiled for stomach pains and fatigue [RB319].
Caesalpiniaceae	*Cassia cf. grandis* L.f.	Cañandonga	Fruit eaten for anemia. Ornamental tree [RB359].
Chenopodiaceae	*Chenopodium* L.	Yerba santa	Whole plant boiled in water and drunk cold to expel worms from stomach and parasites from children/ treats pain in throat [RB309; RB331 JBGP, COL].
Lamiaceae	*Mentha* L.	Yerbabuena	Leaves boiled to make a tea to treat stomach pain and parasites [RB303].
	Ocimum L.	Toronjil	To calm nerves and stomach upset, leaves boiled in water as a tea [RB300 JBGP].
	Ocimum L.	Cañelon	Seeds boiled in water to make an aromatic [RB332 JBGP, COL]
	Ocimum L.	Albaquita	To calm nerves and colds, whole plant boiled in water to make a tea/ whole plant used in bath for aches and pains [RB305; RB320,JBGP; RB335 JBGP, COL].
	Ocimum americanum L.	Toronjil	To calm nerves, whole plant boiled in water to make a tea [RB333 JBGP, COL].
	Origanum basilicum L.	Cotorera	Whole plant though root preferred to treat general pain and colds, boiled in water to make a tea [RB334 JBGP, COL].
	Origanum vulgare L.	Orégano	Liquid from stem of leaves put in the ear for earaches [RB308].
	Salvia L.	Salvia	Leaves eaten to treat colds; same also to clean teeth [RB310].
Piperaceae	cf. *Peperomia* Ruiz & Pavón	Canelón	To calm nerves, flowers + leaves boiled in water to make a tea [RB323].
Plantaginaceae	*Plantago major* L.	Llantén	To treat pain in urinary tractk, leaves boiled in water to make a tea/ leaves also used to treat eye problems [RB329 JBGP, COL].
Punicaceae	*Punica granatum* L.	Granada	Seeds eaten as a diuretic [RB304].
Rutaceae	*Citrus cf. aurantium* L.	Azahares de la India	Leaves used to treat pain in the molar teeth [RB324].
	Ruta L.	Ruda	The leaves are placed in alcohol and rubbed on head for pain [RB364].
Scrophulariaceae	*Scoparia dulcis* L.	Yerba anis	Plant used to heal snake bite. Cultivated? [RB240 JBGP].
Verbenaceae	*Lantana* L.	Mejorana	To treat colic [RB321 JBGP].
Wild Plants:			
Acanthaceae	*Elytraria* Michx.	Verbena	Roots used in decoction for colds with *Bauhinia* and *Cassia odoratissima* and panela [RB183 JBGP, COL].
Apocynaceae	*Rauvolfia tetraphylla* L.	Cerecillo	Leaves used in bath to relieve tension [RB152 JBGP].
Asteraceae	*Baccharis trinervis* var. *rhexioides* (HBK.) Baker.	Manzanillo	Plant (part unspecified) used in bath for body [RB151 JBGP, COL].
Boraginaceae	*Heliotropium angiospermum* Murray	Verbena	Roots used in decoction for colds with *Bauhinia* and *Cassia odoratissima* and panela [RB109 JBGP, COL].
	Heliotropium angiospermum Murray	Verbena criolla	Roots used in decoction for colds with *Bauhinia* and *Cassia odoratissima* and panela [RB142 JBGP].
Caesalpiniaceae	*Bauhinia* L.	Pata de vaca	Leaves eaten for hurting teeth [RB107 JBGP, COL].
	Cassia odoratissima Jacq.	Reuma	Leaves used in bath for pain in body, head, colds [RB106 JBGP, COL].
	Cassia reticulata (Willd.) I. & B.	Bajagua	Not obtained [RB274 JBGP, COL]
Commelinaceae	*Commelina diffusa* Burm.	Ojito de Santa Lucia	Nectar from flower used to clean eyes [RB159 JBGP, COL; RB224 JBGP].
Convolvulaceae	*Ipomoea tubiflora* Hook. f.	Papuche	Liquid (leche) put onto small wounds [RB263 JBGP, COL].
Cucurbitaceae	*Luffa cylindrica* (L.) Roem.	Lavaplato	Dried fruit used to wash and scrub skin [RB278 JBGP, COL].
	Momordica charantia L.	Balsamina	Seeds (can be toxic) used for colds/ seeds used in bath for skin [RB172JBGP, COL; RB179].

Continuación tabla 1...

Family	Species	Local name	Uses (collection numbers and herbaria of vouchers)
Euphorbiaceae	*Ricinus communis* L.	Higuerillo	Seeds boiled in water with *Heliotropium angiospermum* for colds [RB124 JBGP, COL].
Fabaceae	*Gliricidia sepium* (Jacq.) Steud.	Matarratón	Liquid is used to clean eyes. Wild or planted as boundary marker/fence [RB126].
Lamiaceae	*Hyptis capitata* Jacq.		Not obtained [RB275 JBGP, COL].
Lecythidaceae	*cf. Eschweilera* Martius	Cocuelo	Indicated to have many uses including medicinal ones, used more in past [RB121].
	Eschweilera Martius	Cocuelo	Seeds known (specific use not obtained) to cause a loss of hair [RB238 JBGP, COL].
Malvaceae	*Malachra rudis* Bentham	Malva	Root cooked with sugar for diarrhea with blood [RB114JBGP, COL].
	Sida rhombifolia L.	Escobilla la platonita	Applied to bites [RB129JBGP].
Phytolaccaceae	*Petiveria alliacea* L.	Anamú	Plant used to treat colds and pain in body [RB173 JBGP, COL].
Piperaceae	*Peperomia* Ruiz & Pavón	Venturosa	All parts of plant cooked in water and decoction drunk to treat pain in lower back and kidneys/ pain during pregnancy. Also grown in gardens [RB276 JBGP, COL].
Rubiaceae	*Chomelia spinosa* Jacq.	Fruta de pava	To treat colds, leaves boiled in water with *Cassia odoratissima* to make a tea [RB108].
Scrophulariaceae	*Scoparia dulcis* L.	Yerba anís	Plant used to heal snake bites by "curanderos" [RB180 JBGP, COL]
Sterculiaceae	*Guazuma ulmifolia* Lam.	Guasimo	Plant (part unspecified but probably mucilaginous cortex and/or fruit) made into a syrup to treat colds [RB120].
Verbenaceae	*Lantana* L.	Malvita	Plant (part unspecified) used to treat colds, used as drink or in bath with *Chomelia spinosa* [RB140 JBGP, COL].

Voucher specimens not listed as being in the JBGP or COL were identified in the field by the author utilizing Romero Castañeda (1965) and Pérez-Arbeláez (1978).

grandis, *Chenopodium*, *Citrus* cf. *aurantium*, *Lantana*, cf. *Peperomia*, *Plantago major*, *Punica granatum*, *Ruta* , and *Scoparia dulcis*. Most of these plants (Compositae, Lamiaceae, Piperaceae, Rutaceae) were indicated to be used to treat general pain, colds or to calm the nerves. Other uses are for sore throat, earache or toothache (*Chenopodium*, *Citrus*, *Origanum vulgare* , *Salvia*); to eliminate parasites and worms (*Chenopodium*, *Mentha*); in urinary tract problems (*Plantago major*, *Punica granatum*); for colic (*Lantana*); to treat anemia (*Cassia* cf. *grandis*) and to treat snake bite (*Scoparia dulcis*). Of note, a number of these plants have an Old World origin and/or are used as condiments in food or as food (*Chenopodium*). None of these well known spices or foods was indicated to have such a use by the informants at San Jacinto.

In general the majority of the plants were prepared for use by boiling the leaves in water to make a tea; this preparation was almost exclusively used for those plants utilized to treat general pain, colds, fatigue or to calm the nerves. The leaves of *Chenopodium* and *Mentha* are also boiled in water to make a tea which is drunk to relieve pain in the throat and to eliminate parasites/worms in the intestinal system. The leaves of *Plantago major* are boiled in water to make a tea which is drunk for pain in the urinary tract; the seeds of *Punica granatum* are eaten as a diuretic. For colic, the leaves of *Lantana* are also boiled and made into a tea. Liquid from the stem of *Origanum vulgare* is placed in the ear for earache. The leaves of *Salvia* are eaten to clean the teeth and also to treat colds. The leaves of *Citrus* are also used to treat pain in the molar teeth. The fruit of *Cassia* cf. *grandis* is eaten to improve anemic states and parts (not obtained) of the plant of

Table 2. Plants used medicinally for animals at San Jacinto

Family	Species	Local name	Uses (collection numbers and herbaria of vouchers)
Bignoniaceae	*Crescentia L.*	Totumo	Purgative [RB355 JBGP, COL].
Euphorbiaceae	*Ricinus communis* L.	Higuerillo	Remedial, seeds boiled in water with *Heliotropium angiospermum* for donkeys [RB124 JBGP, COL].
Malvaceae	*Malachra rudis* Bentham	Malva	Root cooked with sugar for diarrhea with blood for humans and animals [RB114 JBGP, COL].
Sterculiaceae	*Guazuma ulmifolia* Lam.	Gausimo	Purgative for animals [RB318 JBGP, COL].
Verbenaceae	*Bouchea prismatica* O. Ktze.	Granavi	Remedial, eaten by donkeys [RB196JBGP, COL].

Voucher specimens not listed as being in the JBGP or COL were identified in the field by the author utilizing Romero Castañeda (1965) and Pérez-Arbeláez (1978).

Scoparia dulcis are placed on wounds caused by snake bite.

The majority of the plants (27 specimens) indicated to have medicinal uses were growing wild in the area near the archaeological site of San Jacinto 1, just outside of the town limits. These specimens comprise 19 different families, 22 genera and 18 identified species. The number of families cited was nearly twice as many as that for plants grown in the medicinal gardens. Uses include to treat general pain, colds and to calm the nerves (*Cassia odoratissima* , *Chomelia spinosa*, *Elytraria*, *Guazuma ulmifolia*, *Heliotropium angiospermum*, *Lantana*, *Momordica charantia*, *Petiveria alliacea*, *Rauvolfia tetraphylla*, *Ricinus communis*); for dermatological reasons (*Baccharis trinervis* var. *rhexioides*, *Luffa cylindrica*, *Momordica charantia*); for eye or teeth problems (*Bauhinia*, *Commelina diffusa*, *Gliricidia sepium*); for injuries, wounds, or bites including snake bite (*Ipomoea tubiflora*, *Sida rhombifolia*, *Scoparia dulcis*); for diarrhea with blood (*Malachra rudis)*; to treat pain in lower back and kidneys (*Peperomia*); and pain during pregnancy (*Peperomia*).

Those wild plants used to treat colds and general pain are usually used in combination (as with *Bauhinia*, *Cassia odoratissima*, and *Heliotropium angiospermum*) unlike those plants from the medicinal gardens which were in general used separately. The leaves are boiled in water to make a tea. In the case of *Guazuma ulmifolia* a cough syrup is made in water from the latex of the cortex or fruit of the tree. Sometimes the leaves of the plant are placed in water to treat pains and colds or for dermatological reasons. Other treatments include cooking the roots of *Malachra rudis* with sugar for diarrhea with blood, and for pain in the lower back and kidneys the whole plant of *Peperomia* is cooked in water and sugar and eaten. In the case of the uses for toothache, the leaves of *Bauhinia* are eaten and to clean the eyes the liquid from the plants of *Commelina diffusa* (nectar found in a sack under the flower) and *Gliricidia sepium* are placed in the eyes. In the case of injuries, wounds or bites the plant part of the specimen (the liquid from the stems in the case of *Ipomoea tubiflora*) is prepared and placed on the wound.

Of the plants collected at San Jacinto with medicinal uses, there was a 55 percent correspondence to similar medicinal uses listed in a general literature review of plants utilized in Colombia (Table 3, cf. Romero Castañeda 1965, García Barriga 1992, Pérez-Arbeláez 1978, 1990, Schultes & Raffauf 1990) and of medicinal plants utilized by Hispano-Americans (Ford 1975). Of the 22 plants collected from the medicinal gardens in San Jacinto only two species, *Ocimum americanum*, and the tree known as *cañandonga*, *Cassia* cf. *grandis*, were not found listed in the references on medicinal plant uses in Colombia. The whole plant of *toronjil* is boiled in water to make a tea, which is drunk to calm the nerves. In the case of *cañandonga*, the fruit of the tree is eaten to treat anemia. The

Table 3. Summary of Medicinal Plant use for Humans and Animals by Category of Use , Part Used, and Application at San Jacinto and in the General Literature Review.

Scientific name	**At San Jacinto**	**In Literature Review**	**References Cited**
HUMANS:			
Cultivated Plants from Medical Gardens :			
Asteraceae			
Artemisia absinthium L.	5,7,28,34	5,6,7,8	45.47
Caesalpiniaceae			
Cassia cf. Grandis L. f.	2,23,36	13,30,39	43
Chenopodiaceae			
Chenopodium L.	4,6,28,34,36	6,26,40	45,47,48
Lamiaceae			
Mentha L.	5,6,24,34	5,11,14,15	46.48
Ocimum L.	7,24,26,28,32,34	4,5,7,36	44.48
Ocimum americanum L.	7,28,34		
Ocimum basilicum L.	7,25,28,34	4.17	47
Origanum vulgare L.	4,24,27,30	5,9,10,11,17,28,32,37	45,46,47
Salvia L.	7,11,24,36	2,3,5,11,16,24,28,36	46.47
Piperaceae			
cf. *Peperomia* Ruiz et Pavón	7,22,24,34	3,4,5,7,15,16,17,24,38	46.48
Plantaginaceae			
Plantago major L.	4,14,24,34,35	1,3,4,5,7,8,11,13,22,24,26, 29,36,37,39	45,46,47,48
Punicaceae			
Punica granatum L.	15,26,36	3,4,5,6,23,25,26,34	45.47
Rutaceae			
Citrus cf. *aurantium* L.	11,24,36?	2,4,5,6,7,11,22,24,29,33,37	46.47

Continuación tabla 3....

Ruta L.	7,24,35	2,3,5,10,11,12,17,24,35,38	46.47
Scrophulariaceae			
Scoparia dulcis L.	16,28?,35	7,12,16,34,36,37,38	42,47,48
Verbenaceae			
Lantana L.	5,31,34?	2,3,5,6,7,8,10,12,13,24,26, 34.37	45,46,47,48
Wild Plants :			
Acanthaceae			
Elytraria Michx.	7,25,34	3,5,7	42
Apocynaceae			
Rauvolfia tetraphylla L.	7,24,32	2,10,16,24,27,28	45.46
Asteraceae			
Baccharis trinervis var. *Rhexioides* (HBK) Baker.	3,31,32	4,7,8,28,32,34,35,38	45
Boraginaceae			
Heliotropium angiospermum Murray.	7,25,34		
Caesalpiniaceae			
Bauhinia L.	7,11,24,36	3,5,6,7,8,15,22,24,25,27,29,34	45.48
Cassia odoratissima Jacq.	7,24,32		
Cassia reticulata (Willd.) I & B.	18	8	42
Commelinaceae			
Commelina diffusa Burm.	4,30,35		
Convolvulaceae			
Ipomoea tubiflora Hook.f.	16,30,35		
Cucurbitaceae			
Luffa cylindrica(L.) Roem.	3,23,35	3,5,23,25	47.48
Momordica charantia L.	3,7,26,32,36?	4,5,7,9,17,23,24,37,39	42,46,47

Continuación tabla 3...

Euphorbiaceae			
Ricinus communis L.	7,26,34	1,3,5,17.26,37	45,46,47
Fabaceae			
Gliricidia sepium (Jacq.) Steud.	4,30,35	3,5,24,32,37,38	42,45,47
Lamiaceae			
Hyptis capitata Jacq.	18	5,24,36	48
Lecythidaceae			
Eschweilera Martius.	1?,26	6,30,36	48
Malvaceae			
Malachra rudis Bentham	5,25,36	3,16,17,28,32,34	45
Sida rhombifolia L.	16,31,35	3,16,22,24,27,32,34	45
Phytolaccaceae			
Petiveria alliacea L.	7,28,41	4,7,11,13,22,24,27,32,33,34, 35	42,46,48
Piperaceae			
Peperomia Ruiz et Pavón.	12,15,28,34	3,4,5,7,15,16,17,24,38	46.48
Rubiaceae			
Chomelia spinosa Jacq.	7,24,34		
Scrophulariaceae			
Scoparia dulcis L.	16,28?,35?	7,12,16,34,36,37,38	42,47,48
Sterculiaceae			
Guazuma ulmifolia Lam.	7,23?,29?,39	2,3,7,12,15,29,30,34	44.45
Verbenaceae			
Lantana L.	7,31,32,36	2,5,6,7,8,10,12,13,24,26,34,37	45,46,47,48
ANIMALS:			
Bignoniaceae			
Crescentia L.	20	2,5,7,11,13,16,23,24,29,33,39	42,45,48

Continuación tabla 3...

Euphorbiaceae			
Ricinus communis L.	21,26,34	1,3,5,17,26,37	45,46,47
Malvaceae			
Malachra rudis Bentham.	19,25,36	3,16,17,28,32,34	45
Sterculiaceae			
Guazuma ulmifolia Lam.	20	2,3,7,12,15,29,30,34	44.45
Verbenaceae			
Bouchea prismatica O. Ktze.	21,31,36	3,4,7,17,24,28,32,34,38	45

Category of Medicinal Use: 1 = Cancer; 2=cardiac and circulatory; 3=dermatological; 4=eye, ear, and throat; 5=gastrointestinal other;6=gastrointestinal (parasites and worms);7=general pain, colds fevers, tension, fatigue; 8=hepatic; 9=metabolism (diabetes); 10=nervous system; 11=odontological; 12=pregnancy, menstruation; 13=respiratory; 14=urogenital infection; 15=urogenital other; 16=wounds and bites17=other; 18=unspecified.
Animal Category: 19=gastrointestinal other; 20=purgative; 21=remedial.
Parts Utilized: 22=flowers; 23=fruits; 24=leaves; 25=roots, 26=seeds; 27=stem; 28=whole plant; 29=wood; 30=other; 31=unspecified.
Application: 32=bath; 33=chewed; 34=decoction; 35=direct application; 36=eaten or drunk; 37=infusion; 38=poultice; 39=syrup; 40= other; 41=unspecified.
References : 42= Romero Castañeda 1965; 43=Coe & Anderson 1996; 44=Ford 1975; 45=García Barriga 1992; 46=Lewis & Lewis 1977; 47=Perez- Arbelaez 1978; 48=Schultes & Raffauf 1990.

genus *Cassia* and other members of it were found listed in Ford (1975). However, the medicinal uses of the plants were not known. The species is utilized by the Garífuna of eastern Nicaragua, where the pods of the plant are boiled to a syrup and used for disorders of the respiratory tract (Coe & Anderson 1996).

Five other genera and species from the medicinal gardens, though found in the literature on medicinal plants in Colombia, had uses which differed from those previously recorded for them. These plants include *Mentha*, *Origanum vulgare*, *Plantago major*, *Punica granatum*, and *Ruta*. *Mentha* is known to be a treatment for stomach pain (Schultes & Raffauf 1990) but was not cited in the literature as being a treatment for parasites. The use of putting the liquid from the stem of the leaves of *orégano*, *Origanum vulgare*, in the ears to help earaches was not indicated in the literature (Pérez-Arbeláez 1978, García Barriga 1992). Although *Plantago major* is a well known medicinal plant with various uses, its use to treat pain in the urinary tract was not previously recorded (García Barriga 1992, Lewis & Elvin-Lewis 1977, Pérez-Arbeláez 1978, Schultes & Raffauf 1990). As well, eating the seeds of *granada* as a diuretic was also not found listed for *Punica granatum* though it is used for collyrium and diarrhea (García Barriga 1992, Pérez-Arbeláez 1978). The leaves of *ruda* are used in alcohol and rubbed on head for pain. The literature does indicate that *Ruta graveolens* is a well known medicinal plant and is often found grown in gardens. Some of its uses include for digestive problems, for hysteria, for epilepsy and as a sudorific. It is also used in plasters against erysipelas and it is a dangerous abortive (Pérez-Arbeláez 1978). Further, the informants indicated use of the genus *Ocimum* to calm the nerves and for pain and colds can probably be considered the same as that cited in the literature, which indicated a fever-reducing use for members of the genus (Schultes & Raffauf 1990).

Five of the wild plants were not found listed in the references checked for medicinal plant used in Colombia (see Table 3) (Romero Castañeda 1965, García Barriga 1992, Pérez-Arbeláez 1978, 1990, Schultes & Raffauf 1990). These include *Cassia odoratissima*, *Chomelia spinosa*, *Commelina diffusa*, *Heliotropium angiospermum*, and *Ipomoea tubiflora*. Nectar from the flower of *Commelina diffusa* is used to wash the eyes and liquid (*leche*) from the stems of the shrub known as *papuche*, *Ipomoea tubiflora*, is put onto wounds, potentially as an antiseptic.

In the case of *Cassia odoratissima*, *Chomelia spinosa*, and *Heliotropium angiospermum* in San Jacinto, the three are often used in combination to treat colds. The roots of *Heliotropium angiospermum* are used in decoction with *Cassia odoratissima* and *Bauhinia* and *panela* (unrefined cane sugar) to treat colds. *Elytraria* may also be used in combination with *Cassia odoratissima*, *Bauhinia* and *panela* to treat colds. The use of *Elytraria* to treat fevers is known in Bolívar (Romero Castañeda 1965). The leaves of *Cassia odoratissima* can also be used in the bath for pain in the body, head and for colds. Further, the leaves of *Chomelia spinosa* are boiled in water with *Cassia odoratissima* to treat colds.

Seven other wild genera or species were indicated to have medicinal uses different from those listed in the references on medicinal plants from Colombia (Table 3). These include *Baccharis trinervis* var. *rhexioides*, *Bauhinia*, *Gliricidia sepium*, *Malachra rudis*, *Momordica charantia*, *Peperomia*, and *Rauvolfia tetraphylla*. The leaves of *Rauvolfia tetraphylla* are used in the bath to relieve tension. The seeds of *Momordica charantia* are used in the bath for dermatological purposes as potentially is the plant (part unspecified) of *Baccharis trinervis* var. *rhexioides*. The leaves of *Bauhinia* are eaten for toothache. Liquid from the tree of *Gliricidia sepium* is used to wash the eyes. The use of *venturosa*, *Peperomia*, for pain during pregnancy was not indicated in the literature (Schultes & Raffauf 1990). The use of the roots of *Malachra rudis* for diarrhea with blood is also different from that listed by García Barriga (1992), who cites a decoction of the whole plant used in baths as an emollient and for bruises and contusions and to reduce inflammation caused by injuries and infections to the skin.

The overall concordance between information obtained on medicinal plant use and that found in the literature (similar uses cited for 27 specimens or 55% of medicinal specimens collected) reveals a generally comparable level of medicinal plant knowledge between the peasants at San Jacinto and indigenous and other groups utilizing popular medicine in Colombia. Those plants (22 specimens or 45% of the collected medicinal specimens representing 15 families, 18 genera, and 15 identified species) with uses not previously cited in the literature should be investigated further for medicinal use in this and other areas of Central and South America and for their bioactivity.

The sixth most common use cited for plants by informants of the San Jacinto region was as animal medicine (5 specimens, 2% of uses cited). Animal medicinal plants covered five species in five different families (Table 2). These uses included two plants as general remedials (*Ricinus communis* and *Bouchea prismatica*), two as expurgants (*Crescentia* and *Guazuma ulmifolia*), and one use for diarrhea with blood (*Malachra rudis*). This last plant is utilized also for humans with the same problem. Medicinal uses of *malva*, *Malachra rudis*, and *granavi*, *Bouchea prismatica*, for animals were not indicated in the general literature review (Table 3) (Romero Castañeda 1965, García Barriga 1992, Pérez-Arbeláez 1978, 1990, Schultes & Raffauf 1990).

Finally, although the majority of the plants collected in the region were native to the New World and tropical and subtropical regions of the Americas, a few of the categories of uses had a notable inclusion of foreign introduced plants. One of these categories included plants identified from medicinal gardens as having medicinal uses but better known as spices or condiments. Of the 23 plants collected or brought to the author from three medicinal gardens in San Jacinto, 15 (65 %) were from foreign introduced plants. These included members of the families Asteraceae, Lamiaceae, Punicaceae, and Rutaceae, the majority being from the Lamiaceae. In contrast, of the 26 plants collected growing wild only 3 (12 %) were of Old World origin. These include *Luffa cylindrica*, *Momordica charantia*, and *Ricinus communis*. The majority of the wild plants were native to the Americas or to tropical and subtropical regions of the world (see Schultes & Raffauf 1990, Romero Castañeda 1965).

Interestingly, all of the plants of the family Lamiaceae were noted as having medicinal uses but none was indicated as being used as a culinary herb or condiment. If the English common names of these plants are reviewed, basil, sweet basil, oregano, it is obvious that they have a well known use as spices. This discrepancy remains unexplained. A few other plants from these medicinal gardens were of New World origin including *Chenopodium* and cf. *Peperomia* with Pantropical specimens including *Plantago major* and *Lantana* (Schultes & Raffauf 1990).

Discussion

From the data presented in this article a number of observations can be made. First of all, one begins to see that the categories of medicinal use are different for groups occupying different environmental contexts. The categories of medicinal use of the peasant community at San Jacinto appear to reflect the environmental and, to some extent, the working conditions encountered by this group. The environmental context of San Jacinto is one of a tropical savanna with a bimodal seasonality of wet and dry periods. As is typical in the tropics, problems of infections by bacteria, parasites, worms, and amebas are common. This fact would explain the preponderance of plant uses for treatments of infections of the digestive tract, ear, eye and throat and possibly skin and urinary tract (26%of uses cited) (see Milliken & Albert 1996, Table 4 for similar conclusions for four South American Indian groups). During the dry season eye irritations are common. The continued working of the land by the *campesinos* of San Jacinto accounts for the incidents of plant use to treat wounds and snakebite (7% of uses cited).

Another area of similarity between the data from San Jacinto and the cited references for plant uses (Romero Castañeda 1965, García Barriga 1992, Lewis & Elvin-Lewis 1977, Milliken & Albert 1996, Pérez-Arbeláez 1978, 1990, Schultes & Raffauf 1990) is the preponderance of local treatments for colds, fevers, and aches and pains (43% of cited uses). These generalized health problems are common in all parts of the world regardless of environment. For instance, even in western medicinal practice the old adage whereby the doctor tells the patient to "take two aspirins and call me in the morning" is symptomatic of this situation. In total 84 percent (43% for pain, 26% for minor infections, 7% for wounds and bites, and 8%for other normal health problems of toothache and colic) of the cited medicinal uses of plants are for common, less serious afflictions.

In contrast, the lesser use of local plants (9% of uses cited) for treatments of more serious illnesses (i.e., malaria) or of systemic or overall physiological ailments such as circulatory, cardiac, hormonal, urinary or diabetic problems is of interest. While the referenced literature (see Romero Castañeda 1965, Lewis & Elvin-Lewis 1977, Pérez-Arbeláez 1978, 1990, Schultes & Raffauf 1990, García Barriga 1992) is replete with plants used to treat such systemic ailments, from San Jacinto only a possibility of five plants (a diuretic, for anemia, and for problems with pregnancy, diarrhea with blood, and the kidneys) were noted to have such uses.

Two reasons may be surmised for this fact. The first is that the community at San Jacinto did not encounter these health problems regularly enough to have developed or to need medicinal plant uses to treat them. The other option is that the knowledge of how to perform these treatments has been lost over time and the ailments are now being treated by more western medicinal methods (as defined in Coe & Anderson 1996), such as a visit to a medical doctor and the use of pharmacies and pharmaceuticals. In this case popular medicine, which is practiced by the general population for treating common illnesses, continues to be utilized. The information for such treatments is and has been available to the general population. However, folk medicine, or that used to treat more serious illnesses, is not practiced by the general peasant community. Folk medicine requires persons such as shamans and midwives with specialized knowledge of plants and rituals to be performed (see Coe & Anderson 1996 for a good discussion on these different types of medicine and their relation to one another). This knowledge is guarded and not readily available to the general population.

The data from San Jacinto thus indicate that folk medicinal knowledge is the type most likely to be lost in the transition of a group from the status of indigenous to peasant in state societies. If this statement is verified through other studies of peasant communities and if the preservation of such medicinal knowledge is deemed important by the state, then the maintenance and promotion of systems of education and apprenticeship of shamans and midwives needs to occur when indigenous groups are incorporated into state societies.

Other areas of apparent dissimilarity between the peasant community at San Jacinto and indigenous groups of South America are in the manner of application of medicinal plants. Of the 48 applications cited for San Jacinto, 31 (65%) are taken internally, usually as a decoction, while 17 (35%) are applied externally, usually directly or as a bath. In contrast, for instance, for the Tiriyó of Brazil (Milliken & Albert 1996) of 209 applications, 41 (only 20%) were used internally while 168 (80%) were used externally.

A final observation is related to the differences in the locations where plants of Old World versus New World origin are found. As noted, 65% of the plants located in the household medicinal gardens were of Old World origin while only 12% of wild plants used for medicine were of Old World origin. This fact is of interest in that it may reveal a behavioral practice that was carried over from early interactions with Europeans. These Old World examples would have been introduced in a context of cultivated plants which would have required similar activities by indigenous or other groups for their continued maintenance. Alternatively, their proven usefulness may be reason enough to keep them close at hand in household gardens.

Information from peasant communities should not be ignored simply because these groups do not represent "pure" indigenous entities. Important comparisons between peasant and indigenous plant medical use and applications can be made to ascertain similar or dissimilar health problems affecting these groups (for instance see Milliken & Albert 1996). Uses not previously cited in the literature even for well known plants of European origin might point to information on bioactivity not previously explored and should be approached as such. The data collected on wild species also needs continued study as part of the general trend toward bioprospecting for potentially important medicinal plants. The data on wild species can be a pool of information that may be lost in the future and deserves recording. More information on the parts utilized, type of preparation and type of application is necessary, as is an expanded collection of voucher specimens. Future survey of more medicinal gardens in San Jacinto and surrounding communities should prove to be very enlightening on the process of human adaptation to savanna environments.

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